

Richmond Refinery LPS Bulletin – Reliability

LNF Post-T/A Catalyst Deactivation (4th Qtr 2011)

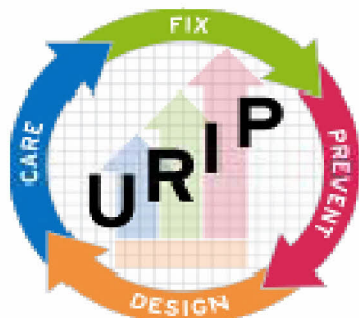


IMPACT ERM LI
Control Number: 30259

Location:
RLOP/Hydroprocessing

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IMPACT ERM Investigation
Number: 18028



URIP

Design/Care/Fix/Prevent

Tenets of Operations Violated: -

Tenet #4

Always follow safe work practices and procedures

Tenet #10

Always involve the right people in decisions that affect procedures and equipment

Incident Description:

Since starting up the LNF after the 4th quarter 2011 major turnaround, the plant has experienced significant:

- yield loss (20% - 30%)
- catalyst activity loss (~ 50F)
- plant rates below plan (1 – 4 MBPD when running 220N)

As background, during the 4th qtr in 2011, the RLOP plants were shut down for a planned turnaround. Included in the turnaround scope was a modification of the feed/effluent heat exchanger bypass piping and the replacement of the catalyst in R-1310. After hydrotesting, 150 gal of water remained in a low point section of the LNF feed line and was displaced onto the catalyst (cat) during the hydrogen dry out procedure. A decision was also made to startup with W220N rather than W100N, which had a predicted temporary 30F loss in cat activity over 3-6 months. The combined loss of cat activity from the water and feed stock resulted in a decision to shutdown in May to replace the cat in R-1310.

Investigation Findings:

- 1) Approximately 150 gallons of water remained in a “low spot” in the LNF feed line following a hydrotest and line draining.
- 2) The LNF started up on a waxy W220N run rather than W100N which had not been done previously.

Lessons Learned / Business Practices:

- 1) Operational discipline is critical to safe and reliable operations such as addressing conditions prior to start up, e.g., systems are water free.
- 2) Involve the “right people” in the decision making process when deviating from standard practices.

What Worked Well:

- 1) Good communication between Operations, Process Engineering, Global Lubricants and TEMA on how to address changing and unexpected situations.

Recommendations:

- 1) Revise operator training class materials to emphasize the risks of water deactivating catalyst
- 2) Revise EI-300 (Hydrotesting of Lines & Equipment) and incorporate revisions in Metals Crafts Manuals.
- 3) Develop a Refinery standard on “Yellow Lining” and PSSR to identify risks/hazards.
- 4) Utilize the IMPACT Lookback process to review the process used to enhance the start-up so procedures that the plant is water free and there is a robust process for monitoring dry out.
- 5) Provide decision clarity between the Refinery and Base Oils organization, particularly around MOC for feed change conditions.

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